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MINIATURE ARRAYS OF QUADRUPLER AND ION TRAP MASS SPECTROMETERS

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The conceptual design for miniaturization of two versatile types of mass spectrometers will be discussed: the quadrupole and the ion trap. Reductions in both cases will be carried out using a design principle of *parallel arrays* in which the sensitivity of each device will be maintained by having a 10 x 10 (at least) array to compensate for the lost input aperture area. Two construction techniques will be outlined: one using small, accurately-aligned rods (wires) for the quadrupole array, the second using deep-etch lithography and subsequent replication for the quadrupole and ion trap arrays. *Rf* and *dc* breakdown in these small structures will be discussed.

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